

Aldicarb - Background

- N-methyl carbamate (NMC): to control certain insects, mites, and nematodes.
- Restricted use pesticides due to acute oral, dermal and inhalation toxicity, and to protect ground water.
- Currently registered for use in various agricultural areas on cotton, dry beans, peanuts, soybeans, sugar beets, and sweet potatoes.
- There are no registered residential uses of aldicarb.
- **In 2010**, Bayer (the registrant at that time) voluntarily cancelled the domestic aldicarb uses on citrus (and potatoes), due to unacceptable dietary risk, especially to infants and young children.
 - Existing tolerances remained for citrus to allow for treated imports.

Aldicarb – Background (cont'd)

- The Aldicarb Registration Review Interim Decision (ID) was signed 12/22/2017.
 - Risk estimates for dietary (food only) exposure below the level of concern (included imported citrus commodities only).
 - Drinking water risks were mitigated by appropriate well setbacks and with in-furrow applications.
 - By restricting application of aldicarb to a depth that eliminates runoff from a treated field, the agency no longer expected exposure or risk to terrestrial and aquatic plants, or to aquatic animals.

Aldicarb – Proposed New Uses

- Proposed use for oranges and grapefruit in Texas and Florida
- Apply granules in furrows 2 to 3 inches deep.
 - Apply only with granular applicators which use Positive Displacement Metering Units.
 - Cover or immediately deep-disk any granules spilled to ensure the granules are completely covered with at least 2 to 4 inches of soil.
- Apply granules in a furrow beside individual trees and cover with at least 2 inches of soil by mechanical means.
- The maximum single application rate is 33 pounds product (4.95 lbs a.i.) per acre per year.
- Do not make more than one application per tree per year.
- Well set-back restrictions apply based on soil types.

Projected Percent Crop Treated (PCTn)

The state-level average and maximum PCTn for aldicarb, respectively, are as follows:

- grapefruit (FL): **85%, 90%**; grapefruit (TX): **90%, 100%**; oranges (FL): **90%, 90%**.

AgLogic also submitted comments (and EPA Responses):

- PCTn estimates should be based on “the most current and reliable statistics, such as those provided by the USDA National Agricultural Statistics Service (NASS)”;
 - PCTn values for this analysis were derived from usage data available from Kynetec.
- PCTn should be analyzed using Florida and Texas citrus production data;
 - PCTn values should be interpreted as the percentage of crop acres grown in Florida and Texas that may be treated with aldicarb should the proposed new use for citrus be approved.
- Imported juice concentrate does not contain aldicarb; and
 - It is standard practice for EPA to assume 100% of the imported product is treated.
- An appropriate PCTn for of all US orange and grapefruit acreage is 14.6%.
 - The registrant-proposed PCTn of 14.6% was calculated using national crop production data.

Aldicarb Human Health Risks

- Acutely toxic through oral, dermal and inhalation routes of exposure.
- A highly refined acute dietary (food only) exposure assessment was conducted.
- Food only risk:

Ex. 5 Deliberative Process (DP)

- Food only using drinking water level of comparison (DWLOC) approach :

Ex. 5 Deliberative Process (DP)

Aldicarb Toxicity Profile

Birds and Mammals:

- Primary risk is for birds and mammals consuming granules (1 granule can cause mortality).
 - Numerous incidents involving mortality from accidental or misuse of aldicarb. Modeling with 99.9% incorporation of granules produced RQs that exceeded the LOCs for small and medium birds and mammals.

Aquatic Organisms:

- Most aquatic organism acute and all chronic RQs exceeded all LOCs for all registered labeled uses of aldicarb.

Terrestrial Organisms:

- Highly acutely toxic to honey bees on a contact basis.
 - Although aldicarb has only granule applications which limits contact with bees, it is a systemic pesticide

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Surface Water

FLcitrusSTD scenario file was used to model the citrus use. Considering the different soil incorporation depths, the 1-day average EDWCs are presented below:

Soil Depth	1-day average EDWC (ppb)	DWLOC (0.87 ppb) as percent of 1-day average EDWC	EDWC as multiple of DWLOC
2 inches	39.2	2.22%	45.06
3 inches	17.0	5.12%	19.54
6 inches	4.24	20.52%	4.87

Depending on the soil incorporation depth, the resulting EDWCs represent between 4.87 to 45.06 times of DWLOC. The citrus use label restricts to apply in only two states: Florida and Texas. Since aldicarb is only registered for use on cotton and peanuts in FL and TX, the use of regional PCA can be explored to potentially refine the EDWCs.

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Surface Water: Regionally Refined

The regional PCAs at HUC-2 scale for Florida and Texas on cotton, orchard and vegetables combined are shown below:

HUC-2	PCA cotton+orchard+vegetables
3 (Florida)	14.2%
12 (Texas)	20.8%
13 (Texas)	3%

The adjusted EDWCs for three regional PCA adjustments are tabulated below:

Soil Depth	1-day average EDWC (gpb)	HUC-2 3 (FL) 14.2%	HUC-2 12 (TX) 20.8%	HUC-2 13 (TX) 3%
2 inches	39.2	5.57	8.15	1.18
3 inches	17.0	2.41	3.54	0.51
6 inches	4.24	0.60	0.88	0.13

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Groundwater

- GW drinking water concentrations modeled using Florida Central Ridge Scenario (co-located with citrus use) with 0.5 ft/day groundwater flow velocity.
- Further refinements of the water modeling were considered including co-location of drinking water watersheds with orchard locations. Additional characteristics including aldicarb's sensitivity to water pH levels was also considered.
- For levels below the DWLOC, required well setbacks: 700 ft at pH6; 175 ft at pH7; 50 ft at pH 8.

Benefits and Alternatives

- High value to growers because it controls a broad spectrum of pests and has a longer period of residual activity than most alternatives.
- Use of aldicarb tends to produce higher yields and greater plant root health.
- Based on the broad-spectrum nature of this carbamate, it is likely to control the Asian citrus psyllid; however, aldicarb's role in controlling citrus greening and whether it is more efficacious than the **13 alternatives** (including the recent registration of sulfoxaflor on citrus) are unknown.
 - Limited benefit against ACP if only limited citrus can be treated.

Proposed Steps Forward

- Brief upper management on risks/assessments
- Communication again with the company regarding the reassessment of the PCTn and rebuttal claims.

- **Ex. 5 Deliberative Process (DP)**
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